**K-5 Math Lesson Plan**

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| **Teacher:** Herbin, Tennyson, Harris, Williams | | **Grade: 5th** | | | | **Date(s)**: August 2012 |
| **Unit Title:** Understanding the Decimal Place Value System | | | | **Corresponding Unit Task:** Lesson 3  2012 Summer Olympics—Displaying Decimals  (Teach prior to assessment task 1) | | |
| **Essential Question(s): 5.NBT.3a**  How can I read and write decimal numbers to thousandths using base-ten, number name, expanded form? | | | | | | |
| **Materials/Resources** | | | | | **Essential Vocabulary** | |
| **Teacher:**  Chart paper, dice, Expanded Form chart, Computer with Internet Capabilities and projector | | | **Student:**  Dice, Expanded Form chart (see end of plan), sentence strips (optional), math journals | | tenths hundredths  thousandths expanded form  base-ten numeral place value  number name | |
| **Learning Experience** | | | | | | |
| **8 Mathematical Practices:**  √ 1. Make sense of problems and persevere in solving them.  √ 2. Reason abstractly and quantitatively.  3. Construct viable arguments and critique the reasoning of others.  √ 4. Model with mathematics.  √ 5. Use appropriate tools strategically.  √ 6. Attend to precision.  7. Look for and make use of structure.  8. Look for and express regularity in repeated reasoning. | **Common Core State Standards:**  **5.NBT.3a**  Read and write decimal numbers to thousandths using base-ten, number name, expanded form. | | | | | |
| **I Can Statement(s):**   * I can read decimals to the thousandths using base-ten numerals. * I can read decimals to the thousandths using number names. * I can read decimals to the thousandths using expanded form. * I can write decimals to the thousandths using base-ten numerals. * I can write decimals to the thousandths using number names. * I can write decimals to the thousandths using expanded form. dths using base-ten numerals.ams * I can use base-ten numerals to form decimals to the thousandths using base-ten numerals. * I can use base-ten numerals to form decimals to the thousandths using number names. * I can use base-ten numerals to form decimals to the thousandths using expanded forms. | | | | | |
| **Activating Strategy/Hook:** (How will students become cognitively engaged and focused?)  Students will play Decimal Matching Game in pairs to review place value lesson from previous day. ( <http://lauracandler.com/filecabinet/math/PDF/DecimalMatch.pdf> ) | | | | | |
| **Teacher Directed:**  Gather students together to review decimal place value. The teacher will create an anchor chart for the classroom while students will create their own chart in their math journals or on sentence strips. Share and discuss the different period and values of each number or set of numbers as a class.  *Examples for anchor charts are as follows*:  The following chart could be drawn on chart paper or students could fold sentence strips into 9 equal pieces and draw chart. (Use chart from previous day and add on decimal numbers. Remind students that the decimal point is spoken as the word “and”.)   |  |  |  |  |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | | Hundred Thousands | Ten Thousands | Thousands |  | Hundreds | Tens | Ones |  | Tenths | Hundredths | Thousandths | | 6 | 2 | 8 | , | 8 | 2 | 4 |  | 7 | 5 | 1 |     Place Value Houses   |  |  |  |  |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | | Hundred Thousands | Ten Thousands | Thousands |  | Hundreds | Tens | Ones |  | Tenths | Hundredths | Thousandths | | 6 | 2 | 8 | , | 8 | 2 | 4 |  | 7 | 5 | 1 |   Teacher will use place value charts to demonstrate number name (word form) and expanded form. First, the teacher will read the base ten numeral from the chart emphasizing the specific periods separated by a comma/decimal point. Then the teacher will write the number name for the example in the chart.  Introduce *Expanded Form Place Chart* to explain expanded form. Have students place example number into correct place value spaces. Then model how to bring individual digits down into the space to represent the value of that specific number as well as placing it in the open space to show expanded form.  *EXAMPLE*   |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | | \_8\_ |  | \_5\_ |  | \_1\_ | , | \_4\_ |  | \_3\_ |  | \_7\_ | . | \_9\_ |  | \_6\_ |  | \_2\_ | | Hundred Thousands |  | Ten Thousands |  | Thousands |  | Hundreds |  | Tens |  | Ones |  | Tenths |  | Hundredths |  | Thousandths | | 8 00,000 | + | 5 0,000 | + | 1,000 | + | 400 | + | 30 | + | 7 | + | .9 | + | .06 | + | .002 | | (8 x 100,000) | + | ( 5 x 10,000) | + | ( 1 x 1,000) | + | ( 4 x 100) | + | ( 3 x 10) | + | ( 7 x 1) | + | (9 X 1/10) | + | (9 X 1/100) | + | (2 X 1/1,000) |   Now the teacher will demonstrate how to place an expanded form of a number into the Expanded Form Chart and create the other two forms (base ten—standard and number name word) using the following expanded number.  600,000 + 30,000 + 1,000 + 900 + 50 + 2 + .4 + .08 + .007  Place into chart.   |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | | 6 00,000 | + | 3 0,000 | + | 1,000 | + | 900 | + | 50 | + | 2 | + | .4 | + | .08 | + | .007 | | Add place value names to the next row of the chart. | | | | | | | | | | | | | | | | | | Hundred Thousands |  | Ten Thousands |  | Thousands |  | Hundreds |  | Tens |  | Ones |  | Tenths |  | Hundredths |  | Thousandths | | Change the place value to an expanded form. (Written across, is one form of expanded form.) | | | | | | | | | | | | | | | | | | (6 x 100,000) | + | ( 3 x 10,000) | + | ( 1 x 1,000) | + | ( 9 x 100) | + | ( 5 x 10) | + | ( 2 x 1) | + | (4 X 1/10) | + | (8 X 1/100) | + | (7 X 1/1,000) | | Pull out the digit that represents the place value. (Written across is the base ten—standard-- form.) | | | | | | | | | | | | | | | | | | \_6\_ |  | \_3\_ |  | \_1\_ | , | \_9\_ |  | \_5\_ |  | \_2\_ | . | \_4\_ |  | \_8\_ |  | \_7\_ | | | | | | |
| **Guided Practice:**  The teacher will give the following number written in expanded form to the students. Students will use that form to construct the base ten (standard) form and number name (word) form of the number. *7,000 + 20 + .06 + 500,000 + 3 + .009*  Students will also need to find the base ten—standard—form and expanded form of the following number name (word) form.  *Three hundred seven thousand four hundred six and one tenth*  After all students have completed a row to create a number, the teacher will guide students to fill in the missing information on the expanded form chart to identify numbers in three different forms (base ten--standard, number name--word, expanded). | | | | | |
| **Independent Practice:**  Teacher will dictate which place a random number should be written in. Follow this form for the all of the place value spaces as follows.   1. Place a 9 in the ones places. 2. Place an 8 in the thousandths place. 3. Place a 7 in the hundreds place. 4. Place a 3 in the hundred thousands place. 5. Place a 4 in the tenths place. 6. Place a 6 in the thousands place. 7. Place a 2 in the tens place. 8. Place a 0 in the ten thousands place. 9. Place a 1 in the hundredths place.   Students will then fill in the expanded form chart on their own and write the number name for this generated number. (306,729.418—answer below)   |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | | \_3\_ |  | \_0\_ |  | \_6\_ | , | \_7\_ |  | \_2\_ |  | \_9\_ | . | \_4\_ |  | \_1\_ |  | \_8\_ | | Hundred Thousands |  | Ten Thousands |  | Thousands |  | Hundreds |  | Tens |  | Ones |  | Tenths |  | Hundredths |  | Thousandths | | 3 00,000 | + | 00,000 | + | 6,000 | + | 700 | + | 20 | + | 9 | + | .4 | + | .01 | + | .008 | | (3 x 100,000) | + | ( 0 x 10,000) | + | (6 x 1,000) | + | ( 7 x 100) | + | ( 2 x 10) | + | ( 9 x 1) | + | (4 X 1/10) | + | (1 X 1/100) | + | (8 X 1/1,000) |   *ANSWER:*  **Base Ten**: 306,729.418  **Number Name**: Three hundred six thousand, seven hundred twenty-nine and four hundred eighteen thousandths.  **Expanded**: 3 x 100,000 + 6 x 1,000 + 7 x 100 + 2 x 10 + 9 x 1 + (4 X 1/10) + (1 x 1/100) + (8 x 1/1,000)  OR  300,000 + 6,000 + 700 + 20 + 9 + .4 + .01 + .008  Students will then create their own number and fill in the chart as well as writing the number name. | | | | | |
| **Closing/Summarizing Strategy:**  In their math journals, students will explain how they can read and write numbers using the base ten, number name, and expanded form using 394,148.502   |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | | \_3\_ |  | \_9\_ |  | \_4\_ | , | \_1\_ |  | \_4\_ |  | \_8\_ | . | \_5\_ |  | \_0\_ |  | \_2\_ | | Hundred Thousands |  | Ten Thousands |  | Thousands |  | Hundreds |  | Tens |  | Ones |  | Tenths |  | Hundredths |  | Thousandths | | 3 00,000 | + | 90,000 | + | 4,000 | + | 100 | + | 40 | + | 8 | + | .5 | + | .00 | + | .002 | | (3 x 100,000) | + | ( 9 x 10,000) | + | ( 4 x 1,000) | + | ( 1 x 100) | + | ( 4 x 10) | + | ( 8 x 1) | + | (5 X 1/10) | + | (0 X 1/100) | + | (2 X 1/1,000) |   *ANSWER:*  **Base Ten**: 394,148.502  **Number Name**: Three hundred ninety-four thousand, one hundred forty-eight and five hundred two thousandths.  **Expanded**: 3 x 100,000 + 9 x 10,000 + 4 x 1,000 + 1 x 100 + 4 x 10 + 8 x 1 + (5 X 1/10) + (2 x 1/1,000)  OR  300,000 + 90,000 + 4,000 + 100 + 40 + 8 + .5 + .002 | | | | | |
| **Differentiation Strategies** | | | | | | |
| **Extension**  Using the following numbers, students can rearrange the digits in the number to create the largest or smallest number possible and then write that number in the three forms (base ten—standard, number name—word, and expanded).   1. 932,109.786 2. 775,004.432 3. 536,901.492 | | **Intervention**  • The students will need base 10 blocks to model numbers that the teacher lists on the board in base ten (standard) form.  • Review with the students what each base 10 block represents when we are referring to them as models of whole numbers. (i.e. small cubes represent the number of ones in a number, the rods represent the number of tens in a number, flats represent the number of hundreds, and the large cube represents the number of thousands). Be sure to ask them what they think each block represents. This should not be the first time that they have seen them.  • After reviewing, the teacher will write each of the following numbers on the board one at a time. She/he will ask the students to model or show what the number actually looks like using the base 10 blocks.  http://www.mathatube.com/images/baseten-blocks-97.gif  Other examples are:  5.6   9.42   12.70    2.069  • Have a student draw the model that they created using the base 10 blocks beside the number listed on their whiteboard. Remember: There could be more than one way to model a number. (i.e. 48.5 – 4 tens, 8 ones, 5 tenths or 48 ones, 5/10.)  • By doing this strategy, the students are not just thinking symbolically with numbers, but they are thinking concretely first, then moving to a pictorial representation of numbers. | | | | **Language Development**  To help students get a better visual, have students chart a flip top foldable. Students will fold a piece of paper hot dog style (length wise) and then cut 15 equal flaps (14 cuts). On the top of the flap, students should write the place (For example: Hundreds, Tens) and under the flap, students can write the digit for the correct place. Teachers can have students to use these to grasp the place and value of each number.  http://www.scsk12.org/SCS/curriculum_guides/6-12_Math_Webpage/ms%20pages/foldableexamples_files/image002.jpg |
| **Assessment(s):**  Collect math journals to check for understanding. | | | | | | |
| **Teacher Reflection:** (Next steps?)  • What went well?  • Student understanding/misconceptions.  • Specific notes about students’ thinking.  • What do I need to reteach/review tomorrow or in the future?  • New ideas or changes for next time? | | | | | | |

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| Hundred Thousands |  | Ten Thousands |  | Thousands |  | Hundreds |  | Tens |  | Ones |  | Tenths |  | Hundredths |  | Thousandths |
| \_ 00,000 | + | \_ 0,000 | + | \_,000 | + | \_00 | + | \_0 | + | \_ | + | .\_ | + | .0\_ | + | .00\_ |
| ( \_ x 100,000) | + | ( \_ x 10,000) | + | ( \_ x 1,000) | + | ( \_ x 100) | + | ( \_ x 10) | + | ( \_ x 1) | + | ( \_ x .1) | + | ( \_ x .01) | + | ( \_ X .001) |
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| Hundred Thousands |  | Ten Thousands |  | Thousands |  | Hundreds |  | Tens |  | Ones |  | Tenths |  | Hundredths |  | Thousandths |
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| ( \_ x 100,000) | + | ( \_ x 10,000) | + | ( \_ x 1,000) | + | ( \_ x 100) | + | ( \_ x 10) | + | ( \_ x 1) | + | ( \_ x .1) | + | ( \_ x .01) | + | ( \_ X .001) |
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| Hundred Thousands |  | Ten Thousands |  | Thousands |  | Hundreds |  | Tens |  | Ones |  | Tenths |  | Hundredths |  | Thousandths |
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| ( \_ x 100,000) | + | ( \_ x 10,000) | + | ( \_ x 1,000) | + | ( \_ x 100) | + | ( \_ x 10) | + | ( \_ x 1) | + | ( \_ x .1) | + | ( \_ x .01) | + | ( \_ X .001) |